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ABSTRACT

The standard dictionary definition of a metaphor--a word or phrase applied to an object or concept that it does not literally denote in order to suggest comparison with another object or concept--is inadequate in that it does not deal with whole sentence metaphors and that it provides no way of distinguishing between a metaphor and a semantic anomaly or a falsehood. A superior, alternative definition is that a metaphor is the use of an expression that is contextually anomalous and for which the metaphoric tension is in principle eliminable. Tension elimination can be conveniently discussed in terms of three functions that metaphors can perform: expressing things that are literally inexpressible, conveying concepts in a compact manner, and expressing ideas vividly. Results of experiments on the comprehension of metaphors suggest that two important variables affecting the comprehension of nonliteral uses of language in general, and of metaphors in particular, are the nature of and the amount of contextual support. Finally, it might seem that there is an important difference between metaphors and similes because the apparent violation of conversational postulates, at least of the sincerity postulate, is immediately obvious in the case of the metaphor, but much less obvious for the simile. (GW)

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Technical Report No. 112

SOME PSYCHOLINGUISTIC ASPECTS OF METAPHOR

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Some Psycholinguistic Aspects of Metaphor

In this paper I attempt to do three things. First, in view of the variety of implicit and explicit definitions of metaphor in the philosophical, psychological and linguistic literature, I shall review the "standard" definition of metaphor. Second, I will attempt to furnish an alternative definition of metaphor that seems to accord better with the facts. Finally, I will discuss various issues related to the processes involved in the comprehension of metaphors. Along the way I shall make a few observations about the relationship between metaphors and meaning.

Metaphor: The Standard Definition

The standard dictionary definition is that a metaphor is a word or phrase applied to an object or concept that it does not literally denote in order to suggest comparison with another object or concept. Assuming that it is possible to determine a satisfactory criterion for "literal denotation," this definition is, no doubt, adequate for the purposes of lexicographers. But, as we shall see, it is not adequate for the purposes of psychologists or theoretical linguists. The cognitive psychologist might be concerned with when and why people use metaphors, and when and how they understand them. He/she is concerned with the processes presumed to underlie their use and comprehension, and how, if at all, these processes differ from and are related to those involved in literal uses of language. The linguist might be concerned with the formal properties of metaphors and the semantic and pragmatic relations that they have to their literal counterparts. The

linguist might also be interested in syntactic relations as they pertain to certain kinds of figurative language. None of these interests is well served by the standard dictionary definition.

The standard dictionary definition of metaphor seems to underlie many of the discussions provided by those working in the various disciplines concerned with it. For example, to the extent that metaphor has received serious consideration in linguistics, theoreticians have tended to try to account for it in terms of selection restriction violations. A good example of such an approach can be found in Matthews (1971), who makes two claims of particular interest. One is that the presence of a selection restriction violation is "a necessary and sufficient condition for the distinguishing of metaphor from non-metaphor." The second is that the effect of such a violation is to "de-emphasize the features which figure in [it] as well as those other features most closely associated with it" (p. 424). Within the limiting machinery of selection restrictions Matthews makes a reasonable case for his conclusions. The root of the problem lies in his uncritical acceptance of a theory of semantic features and all that is implied by it. The shortcomings of the feature approach to semantics have been discussed at length both in linguistics and psychology, and Matthews himself admits that semantic features are not assumed to be either psychologically or physically real. But even if one were willing to accept feature theory and the gratuitous ad hoc features that it entails, still there would be two grave difficulties to overcome. First, one would be unable to account for a whole class of metaphors in this way. Second, one would in any case be able to

say little more than that some metaphors are not literally acceptable because of some particular selection restriction violation. It should be noted that Matthews does try to deal with these problems.

The class of metaphors that I claim cannot be handled is comprised of what can be called "whole sentence" metaphors (see, Ortony, Reynolds & Arter, 1978). Whole sentence metaphors are perfectly well-formed sentences that involve no selection restriction violations. They are sentences that demand a metaphorical interpretation in some contexts, and a literal interpretation in others. Taking an example from Reddy (1969), Matthews argues that (1) is not a metaphor even though uttered about a decrepit professor emeritus.

(1) The old rock is becoming brittle with age.

He argues that underlying (1) is a "real" metaphor, (2):

(2) The old professor emeritus is a rock.

But this seems to beg the question. Clearly, if (1) is uttered in the appropriate context it cannot be interpreted literally in any intelligible way, so there is no basis for arguing that in such a context (1) is not a metaphor. It is true that it may imply or presuppose other metaphors such as (2), but that is not a sufficient reason for denying that (1) is, or at least can be, a metaphor.

The second problem concerns some of the consequences of the view that the violation of a selection restriction is a necessary and sufficient condition for something's being a metaphor. If this is the case there would seem to be no way to distinguish between a metaphor and a semantic anomaly

or a falsehood. Matthews' answer to this is to assert that it is merely a question of speaker intention--the speaker must intend to use language metaphorically. But, linguistic communication involves not only a speaker but a hearer. It normally requires that a hearer recognize the speaker's intentions, and that the speaker speaks on the basis of certain expectations about such recognition. The problem with locating certain kinds of speech acts only in the speaker's intentions to perform them is that it renders those speech acts essentially private rather than public acts. Thus, suppose that Matthews' account were accepted. Then, from the point of view of a hearer, who might assume that speakers do not normally intend to speak falsely, what is to be concluded from an utterance that is false and that violates a selection restriction? Why should the hearer not conclude that since the speaker could not have intended to speak falsely he or she must have intended to speak metaphorically? Yet, surely it does not follow from the fact that people rarely intend to utter falsehoods that if someone does inadvertently say something that is false and that also involves a selection restriction violation, that the hearer <u>ipso facto</u> attributes to him or her the intention of speaking metaphorically. One who utters (3) is not likely to be speaking metaphorically:

(3) Sierra Leone is the largest town in Nigeria;

nor, as a rule, is he or she regarded as so speaking. This is not to say that (3) could not possibly be uttered or understood metaphorically, rather it is to say that the fact that it is false and involves a selection restriction violation does not license the inference that someone who uses

it is speaking metaphorically. Matthews argues that the selection restriction violation must be from the speaker's point of view, but this makes metaphor essentially in the mind of the speaker, and without the introduction of some kind of pragmatic analysis, there it has to stay.

I have concentrated on Matthews' treatment of metaphor not because I think it is bad--in fact, within the limitations of the theoretical framework from which he starts I think it is probably as good as one can get--but because it seems to capture so well the essential ingredients of the standard dictionary definition approach. For Matthews, like the dictionary, metaphors operate xclusively at the lexical level, and for Matthews they involve violations of selection restrictions, which is a more technical way of saying what the dictionary says, namely that the word or phrase is applied to an object or concept it does not literally denote.

Generally speaking psychological models of language comprehension have not concerned themselves with metaphor. Perhaps the most notable exception is Kintsch (1974) who acknowledges the importance of accounting for the comprehension of metaphor for any theory to be adequate. While sharing the general dissatisfaction with a feature theoretic account that has been mentioned above, Kintsch nevertheless appears to substantially accept Matthews' account. Rejecting the notion of selection restriction violations, he replaces it with that of semantic anomaly, and maintains that semantic anomaly is a necessary condition for metaphor.

I have suggested that not all metaphors are semantically anomalous. Consider, for example, (4), a perfectly normal English sentence. Certainly, it is not semantically anomalous.

(4) Regardless of the danger, the troops marched on.

What determines whether (4) is a metaphor or not is the context in which it is used. In the context of an army marching to battle it is not likely to function as a metaphor, but in other contexts, such as (5), it is.

(5) The children continued to annoy their babysitter. She told the little boys she would not tolerate any more bad behavior. Climbing all over the furniture was not allowed. She threatened to not let them watch TV if they continued to stomp, run, and scream around the room. Regardless of the danger, the troops marched on.

Here, the entire sentence, (4), is a metaphor. Contrary to the standard dictionary definition which we have been reviewing, it is not really a case of a word or phrase being applied to an object it does not literally denote, because none of the substantive words literally denote their usual objects or concepts. Not watching TV, or the possibility of it, hardly constitutes a danger, there are no real troops, and there is no real marching. It is the whole sentence that is metaphorical, not a word or phrase within it. It is counterintuitive to insist that (4) is not a metaphor. To do so would be to base a judgement on an inadequate characterization of what a metaphor is.

One of the most well-known linguistic treatments of metaphor, and one that avoids some of the problems of the accounts discussed so far, is that due to Reddy (1969). Although he argues that metaphors occur when the normal limits of the referentiality of words are contravened, he is anxious to provide an account that does not exclude sentences such as (4). However,

things start to go wrong when he tries to characterize the meaning of a metaphor. He says:

> .... the 'meaning' of the utterance is primarily whatever is implied by the fact that something was expressed in this curious and unconventional fashion. The symbolic connection of precise referents is less a bearer of information than the fact that the speaker chose such and such a word in such and such a context. (p. 249)

Now, whatever the meaning of a metaphorical utterance is, it cannot be what Reddy says it is. Perhaps the only thing implied by a speaker's "curious and unconventional" choice of words is that the speaker was unable to express his intentions in any other way. One would hardly suppose, however, that the meaning of (4) in a context like (5) was the speaker's inability to express himself otherwise. On the other hand, it does seem to suppose that a hearer's recognition of the curious choice of words may sometimes justify, or even trigger a nonliteral interpretation of them. Furthermore, it probably is the case that the metaphorical meaning of an utterance such as (4), is indeed related to certain implications of it, albeit not those that Reddy has in mind.

I would argue that the metaphorical meaning of a whole-sentence metaphor like (4) in a context such as (5) has to be related to those salient components of its literal meaning that do not conflict with the context, and some of these are implications of the literal meaning. For example, one of the implications of the literal meaning of (4) is that a

group of people continued doing what they were already doing without concern for the consequences. Another is that the probable consequences were undesirable, another that the people were aware of this, but stubbornly unconcerned, and so on.

The utilization, in comprehension, of those salient aspects of literal meaning that do not conflict with the context, is consistent with the account of the comprehension of part-sentence metaphors such as (6) that I have proposed in an earlier paper (Ortony, 1975).

(6) The boy dived into the crowd.

All metaphors give rise to what is usually called metaphorical tension which is a result of the conceptual incompatibility inherent in a metaphor taken in its context. The comprehension of the metaphor requires the elimination of the tension, that is, the elimination of aspects of the meaning of words, phrases or sentences that when interpreted literally give rise to tension.

Metaphor: An Alternative Definition

Having found the standard account wanting, the question arises as to whether or not a superior, alternative account can be offered. What I propose to do now is to try to offer such an account. A first requirement for something to be a metaphor is that it should be pragmatically, or perhaps better, contextually anomalous. This means that a literal interpretation of the expression, be it a word, phrase, sentence, or an even larger unit of text, fails to fit the context. The virtue of this requirement is that it permits the classification of one and the same expression as being a metaphor in some cases and not in others. A corollary

is that it is not linguistic expressions themselves that are metaphors, but particular uses of them. Thus, whether or not (4) is a metaphor depends upon the context in which it is used; and, as we have seen, this is as it should be. The contextual anomaly condition also permits the inclusion of expressions like (6), since insofar as it expresses something that is literally impossible, there can be no normal context in which it will fit unless it is interpreted metaphorically. There may, however, be "abnormal" or magical contexts that will support a literal interpretation of such part-sentence metaphors, and to the extent that there are, tokens of such expressions will not be metaphors. Alice in Wonderland is full of superficially anomalous sentences that can be interpreted literally because of the bizarreness of the contexts in which they occur.

The general point that needs to be emphasized here is that if something is a metaphor then it will be contextually anomalous if interpreted literally (except in rare cases of ambiguous expressions wherein one reading makes sense literally and the other metaphorically, in which case the generalization is still true of the latter reading). Insofar as the violation of selection restrictions can be interpreted in terms of semantic incompatibilities at the lexical level, such violations may sometimes be the basis of the contextual anomaly. But there can be other reasons too, so that selection restriction violations, or, to use the theoretically more neutral description, lexical level semantic incompatibilities, are not the only causes of contextual anomaly. Furthermore, it seems that the distinction between the literal and the metaphorical is one of degree with

there being many difficult borderline cases. If (6) is uttered in the context of a boy running into a crowd of people it seems to be more metaphorical than if it is uttered in the context of a suicidal leap from a tall building. In the latter case its status is much more difficult to determine.

While the contextual anomaly requirement appears to be necessary, it is not sufficient for the characterization of a metaphor. If taken alone it suffers from one of the shortcomings of the standard definition just criticized. It is important to exclude from the class of metaphors, genuine, unresolvable contextual anomalies. Such expressions are unresolvable in the sense that no amount of processing can eliminate the conceptual incompatibilities that exist, be they inter- or intra-sentence ones. Consequently, that part of the comprehension process concerned with the tension elimination fails. So the apparent literal anomaly inherent in metaphorically interpretable expressions, is unresolvable in genuinely anomalous ones. Again, it has to be noted that whether some particular expression is genuinely anomalous depends on the context in which it occurs.

We now have two conditions for something's being a metaphor, which, if taken conjointly seem to be necessary and sufficient. The first is the contextual anomaly condition, the second is that the metaphorical tension should in principle be eliminable. We should probably introduce a third condition, or at least, a caveat, that makes reference to the speaker's intentions and his or her expectations about their recognition. For example, one might require that the speaker intend to speak metaphorically,

and that in order to do so he or she must believe that the tension elimination condition holds, and probably also that the contextual anomaly condition holds. Presumably, the speaker must further believe, or at least expect, that the hearer will recognize these beliefs. If a speaker does not hold such beliefs, whereas he might produce a metaphor inadvertently, in the sense that a hearer might recognize that the two conditions hold, nevertheless, the hearer will wrongly attribute to the speaker certain communicative intentions that were never there, and communication may break down as a consequence. The role of intentions in language production in general is a very complex issue and one whose detailed treatment lies well beyond the scope of the present paper. However it may well be that one has to settle for a rather weak conception of intention. An operational account of such a weak notion of intention might merely require that a speaker be willing to agree that he or she had such an intention after the fact, rather than postulating a specific intention as a causal component of the behavior (which would be a much stronger notion.) The intentions that speakers have as causal components of what they say are likely to be much more global than, for example, the intention to use a particular expression metaphorically. The issue of intention becomes even more complicated when it is considered in connection with the production of metaphors by very young children (see, Gardner, Winner, Bechhofer & Wolf, 1978, for a discussion of this). If intention is an important component in metaphor production, as it obviously is in the use of language in general, then the attribution to very young children of the capacity to produce metaphors

would suggest that children have rather more sophisticated meta-linguistic skills than has generally been supposed. This would be particularly true if one relied on a strong notion of intention. Frequently-cited evidence that young children can perceive resemblances and make comparisons does not justify the conclusion that they have the ability to intentionally use language nonliterally. Comparisons themselves can be literal or nonliteral; their status in this regard depends on what the speaker knows about the referents of the terms being compared, so that it is not always possible for a hearer to judge whether a comparison was or was not intended as a literal one anyway (see, Ortony, 1978; Ortony, in press).

I want now to enlarge somewhat on the theoretical basis of my revised definition of a metaphor, namely, that a metaphor is the use of an expression that is contextually anomalous and for which the metaphoric tension is in principle eliminable. Consider first the contextual anomaly requirement. In his classic paper on Logic and Conversation, Grice (1975) proposes that human linguistic communication is governed by what he calls the Cooperative Principle; a principle that reflects the fact that conversations normally take place against a background of speaker and hearer expectations to cooperate in communication. The Cooperative Principle comprises a number of maxims: "Make your contribution as informative as required," "Try to make your contribution one that is true," "Be relevant" and "Be perspicuous." In order to achieve adequate generalizability it appears necessary to modify and extend some of Grice's original formulations. Following the terminology of Gordon and Lakoff (1975) I shall

refer to my modifications and extensions of Grice's maxims as Conversational Postulates, and for the purposes of illustration I will elaborate on two of them.

Gordon and Lakoff propose that there exist what they call sincerity conditions underlying utterances. Meanwhile, as we have seen, Grice has as one of his maxims an injunction to speak the truth. Combining these gives us the sincerity postulate. The problem with Grice's maxim is that it is too specific since it applies only to assertions whereas what is needed are conversational postulates that govern all speech act types rather than specific types. Grice's maxim could thus be regarded as an instantiation of the sincerity postulate. Expressed in words, the sincerity postulate would be something like, "Try to mean (literally) what you say and imply." This governs not only the truth of assertions, but the felicity of promises, the genuineness of orders, and so on. The second postulate of concern to us is the relevance postulate which is the same as Grice's maxim "Be relevant." Conversations would not be conversations were there to be no relevance connections between adjacent parts; in the same way, it is presumably the case that such relevance relations also distinguish a text from a random collection of sentences.

One of the chief points that emerges from Grice's paper is that while conversational postulates frequently appear to be violated, these violations are usually only apparent, and they occur often for very good reasons. Another way of making this point is to observe that speakers very rarely opt out of the Cooperative Principle. This means that when a hearer encounters

an apparent violation of a conversational postulate, rather than assuming the violation to be real, he attempts to make sense of what has been said in such a way as to render the violation only apparent. The studies reported in Clark and Lucy (1975) could be regarded as being concerned with these resolution processes as they occur in indirect requests. In the case of metaphors it seems that the contextual anomaly characteristic also arises from the apparent violation of one or more of the conversational postulates; the question is, which? Obviously not all apparent violations give rise to metaphorical interpretations. Most indirect speech acts are not metaphors. So, if the existence of contextual anomaly is a necessary condition for a metaphor, and if all apparent violations of conversational postulates give rise to contextual anomaly, then either we have to restrict the metaphor-generating sources of contextual anomaly to some specific subset of apparent violations, or, the burden of distinguishing metaphors from other cases of superficially anomalous uses will fall on the resolvability-of-metaphoric-tension condition.

It is by no means clear that a suitable subset of apparent violations can be found, although it might be worth exploring the possibility that metaphors arise as the result of the apparent violation of both the sincerity postulate and the relevance postulate together. Recall the sentence about the troops, (4), in the context of the frustrated baby-sitter, (5). Since reference is made to non-existent troops, non-existent marching, and non-existent danger, there is an apparent violation of the sincerity postulate. Furthermore, the sudden introduction of these things,

if taken literally, is clearly irrelevant, so there is an apparent violation of the relevance postulate too[1].

If such an account were to be translated into a processing model, the comprehension of metaphors would be characterized by there first being a recognition of the violation of the two postulates followed by a process that rendered those violations only apparent, and that process, as I have already suggested, would be the process of tension elimination, to be discussed in a moment. However, I rather doubt that this model will cover even the majority of cases. For, even though whole sentence metaphors constitute particularly good candidates for it, it is probably the case that all kinds of non-metaphors violate the two postulates that I have suggested might be unique to metaphors. Second, it is not at all clear that such an analysis is appropriate for part sentence metaphors. Furthermore, there are good reasons for supposing that hearers often understand metaphors without any awareness of contextual anomaly at all. I shall have more to say on this later.

Tension elimination can be conveniently discussed in terms of three functions that metaphor can perform. These functions, which are more fully discussed in Ortony (1975) can be expressed as three theses which I shall briefly sketch now. The first is the inexpressibility thesis which claims that metaphors are a means of expressing things that are literally inexpressible in the language in question. It is probably the case that many "dead" metaphors derive their origin from this fact, thereby becoming, for practical purposes, literal expressions today of what was literally

inexpressible yesterday. Consider the vocabulary available in English to describe sounds. It is rather impoverished. If, in trying to describe a loud roar, one says that it was a loud roar, the range of possible noises consistent with that description may well be too great to fulfill the communicative intent. It could cover anything from the sound of a lion to that of a football crowd or airplane. However, the judicious use of metaphor or simile can serve to severely restrict that scope, as when, for example, one would say that it sounded like a railway train going through the room. Assuming that a train was not actually going through the room such a figurative use of language would permit a descriptive "fine tuning" that is unavailable if the language is used only literally. The second thesis, the compactness thesis, while closely related to the inexpressibility thesis, makes a rather different point. It is not so much concerned with the fact that some metaphors have no literal equivalents as it is with the fact that in cases where there are literal equivalents such expressions are very prolix by comparison. If a woman describes her husband as a teddy bear, her intention may be to predicate far more of him than can be readily achieved using single discrete literal predicates. She may want to convey a host of things about him: that he is warm, cuddly, loveable, harmless, soft, etc. etc. The compactness thesis could be regarded as capturing the "etc." aspect, and all that it entails. Finally, the third thesis is the vividness thesis. In essence, it suggests that there are phenomenological and psychological reasons for supposing that metaphors are more image-evoking and more vivid than even their best literal equivalents

(if there are any).

The three aspects of metaphor represented by the inexpressibility thesis, the compactness thesis, and the vividness thesis all relate to the process of tension elimination. When the woman describes her husband as a teddy bear the tension arises as a result of the incompatibility of the humanness of her husband and the non-humanness of teddy bears. Tension elimination is achieved by ignoring those salient aspects or attributes of teddy bears that are perceived as being incompatible with husbands. In this particular example the attributes are such things as "being a toy." In the general case the attributes can be much more complex and may not even be easily representable in the language. Certainly they are not restricted in the way that semantic features are (see Ortony, 1978). What I am proposing is that when these attributes have been eliminated the remaining salient attributes of the vehicle are attributed as a whole, that is, an entire cognitive substructure is mapped onto the topic. By predicating the non-conflicting attributes en masse the articulation of discrete predicates is not required, nor even is a conscious recognition of them. This clearly achieves compactness. It might also achieve vividness and greater imageability since holistic representations of this kind might be closer to perceptual representations than a set of abstracted predicates articulated through the medium of language. The matter is, however, rather more complicated since the tension elimination process might be different under different circumstances[2].

It is often said that metaphors are (intended to suggest) comparisons. The account offered here suggests that the role of comparison is in the tension elimination process. Undoubtedly some metaphors are intended by their authors to focus on shared characteristics between the topic and the vehicle, but others may be intended as a way of expressing what is literally inexpressible, or as a way of causing the hearer to see things in new ways. Sometimes, therefore, comparison may be better regarded as the means of comprehension rather than the purpose of it.

Metaphor: Some Issues Concerning Comprehension

The psychological implications of a Gricean approach to metaphor seem clear enough. In his/her effort after meaning, a hearer may recognize that something is contextually anomalous and that it cannot be sensibly literally interpreted in the context. The hearer then must try to construct an interpretation that resolves the apparent violations of the (sincerity and relevance) postulates. This suggests that more, and presumably deeper, processing is required which in turn should demand more mental effort and more processing time. But, I have suggested that there may not be very many occasions upon which such a stage model adequately describes the comprehension process. This is to say that whereas a Gricean account might be helpful in characterizing what a metaphor is, it does not necessarily help much in characterizing how a metaphor is understood. However, by providing a means for offering a more realistic notion of what a metaphor is, it may provide new prospects for investigating the comprehension of metaphors in the laboratory, an enterprise that in the past has been

thwarted by the difficulty of producing interesting comparisons and adequate controls (see, Ortony, Reynolds & Arter, 1978).

For example, an experiment reported in Ortony, Schallert, Reynolds, and Antos (1978) was designed to investigate the question of whether or not metaphors (always) take longer to understand than comparable literal uses of language, as seems to be predicted by the Gricean account. Accordingly, we tried to determine whether sentences that followed a context which induced their literal interpretations would be comprehended more rapidly than those same sentences following contexts that induced metaphorical interpretations. We also wanted to determine whether the amount of context was a factor. We therefore collected reaction times to understanding sentences while varying the type and length of preceding context. In a second experiment we used a similar procedure to look at performance on idioms. It was hypothesized that with familiar idioms comprehension would be as quick as, if not quicker than, comprehension of those same expressions interpreted literally.

Results of the first experiment showed a strong main effect for length of context; targets following long contexts took much less time to understand than did targets following short contexts. Thus, for example, a sentence like (7) as it appears in a context like (8) took significantly less time to understand than if the context segment were shortened to include only the first sentence of (8).

(7) The fabric had begun to fray

(8) Lucy and Phil needed a marriage councelor. They had once been very happy but after several years of marriage they had become discontented with one another. Little habits which had at first been endearing were now irritating and caused many senseless and heated arguments. The fabric had begun to fray.

There was also a strong main effect for type of context wherein targets following contexts inducing a metaphorical interpretation (like (7) in the context of (8)) took significantly longer to understand than did targets following literal inducing contexts (like (7) in the context of (9)).

(9) The old couch needed reupholstering. After two generations of wear, the edges of the couch were tattered and soiled. Several buttons were missing and the material around the seems was beginning to unravel. The upholstery had become very shabby. The fabric had begun to fray.

Finally, and perhaps most interesting, was the significant interaction between context type and context length. The difference between literals and metaphors was greater for short contexts (4419 and 3616 msec, respectively) than for long ones (2141 and 1910 msec, respectively).

While these results are not capable of distinguishing decisively between alternative theoretical accounts of the underlying processes, it is worth noting that they do not seem to be consistent with a Gricean, stage, model. They suggest that if enough context is provided to enable the construction of a rich semantic representation of the context, then a certain amount of predictive power is provided; an interpretive framework

for the target is established. This would mean that while in the short context condition, the metaphor is processed primarily in a bottom up fashion, in the long context condition top-down processes play a larger role. The metaphor still needs to be "reinterpreted," but the new interpretation is already suggested by the context in the long context condition.

The data from the second experiment showed that idioms used idiomatically take significantly less time to comprehend than do those same expressions used literally. For example, a phrase like "let her hair down" is understood quicker if it occurs in a context that induces its idiomatic reading than if it occurs in one that induces its literal meaning. The mean reaction times for such decisions were 1383 and 1677 msec, respectively. Idioms also take less time than literal translations of their idiomatic meanings (1486 msec), although not significantly less.

Our results then, particularly from the first experiment, suggest that two important variables affecting the comprehension of nonliteral uses of language in general, and of metaphors in particular, are the nature of and the amount of contextual support. With abundant support, whole sentence metaphors appear to be (often) interpreted, as it were, directly and immediately. With little support, a Gricean stage model seems to fit the data. But, as was noted earlier, such a model does not seem appropriate for part sentence metaphors like (6). In such cases, it seems that a better approach is to think in terms of the partial application of the meaning of that part of the sentence being used metaphorically. Furthermore, since

literal uses of language themselves usually capitalize on only parts of the meanings of the components, as dictated by the context, that would suggest that the process for the comprehension of nonliteral uses might, in many, if not in most cases, be fundamentally the same as that for the comprehension of literal uses. This possibility seems to be a very attractive one when worked out in greater detail (see, e.g., Rumelhart, in press; Ortony, 1978.)

The psychological study of metaphor is still very much in its infancy. It is not an easy area to investigate. Even if we get satisfactory answers to all the questions currently being addressed, there are many and difficult ones remaining. I shall conclude by making a few observations on just one of them, namely, the relationship between metaphors and similes.

No adequate theory of metaphor can ignore the difference between metaphor and simile. When the woman says of her husband that he is a teddy bear, she uses a metaphor; when she says of him that he is like a teddy bear, she uses a simile. Traditionally the distinction between metaphor and simile has been made in terms of the distinction between an implicit comparison (metaphor) and an explicit comparison (simile), the latter typically being marked by the presence of "like" or "as." In terms of the analysis that I have offered, it might seem that there is an important difference between metaphors and similes because the apparent violation, at least of the sincerity postulate, is immediately obvious in the case of the metaphor, but much less obvious for the simile. Thus, it is presumably false that the woman's husband is a teddy bear, but is it so obvious that he is not like one? Unless one takes "like" to mean "like in all respects" it

would seem that there are respects in which he is like a teddy bear so that (10) and (11) would appear to have the same truth value.

(10) My husband is like a teddy bear.

(11) My husband is like a teddy bear in some respects.

(12) My husband is a teddy bear.

Since, in some respects, almost everything is like almost everything else, it would seem to follow that under normal circumstances of use, (10) and (11) are true, and if they are both true, they are both literal uses of language, and one might then ask why it is that similes should be discussed in the same context as metaphors at all since the corresponding metaphor, (12), is presumably false. This possibility, that similes are in fact literal uses of language, rather naturally leads to the kind of analysis Kintsch offers. One could argue that since a hearer knows that the metaphorical statement, (12), is literally false he attempts to construct a simile such as (10) from it. The answer, I think, is the one that I discuss in Ortony (1978; Ortony, in press), namely that for genuine similes considered literally, there are no shared salient properties[3]. If this is the case, one might then go on to argue that in fact (10) is false, and that (11) is only trivially true; that is, the respects in which the two terms are similar are trivial, irrelevant respects. This would be one reasonable way to try to reinstate the relevance of similes to metaphors. There are others.

Conclusion

In this paper I have taken the position that there is a real difference between literal and nonliteral uses of language. In terms of a general theory of meaning, this difference has been construed as partly involving a difference in (a weak notion of) speaker intentions. In the case of literal uses of language, speakers mean what they say and say what they mean. In the case of nonliteral language uses, they do not mean what they say, and, I have argued, it may be impossible for them to say what they mean within the constraints of a particular language. Implicit in my remarks has been the notion that in the general case the meaning of an utterance is related to its implications, or some of them. In the case of nonliteral uses of language, many of these are inappropriate and have to be discarded. It may well be that in terms of a theory of meaning, the distinction between literal and nonliteral uses of language is based on a difference of degree rather than anything else. That is, it may well be that some utterances are more metaphorical than others. Such a conclusion seems quite innocuous and is certainly compatible with the notion that the extreme cases might involve different kinds of cognitive processes.

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Footnotes

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[1]Notice that we are better able to appeal to a violation of our more general sincerity postulate than we are to Grice's truth maxim, for since there are as yet no established referents for any of the substantive terms in (4), the truth value of (4) is presumably undetermined. Notice also how the question of truth is assessed relative to the context, as must be the question of sincerity in general.

[2]For example, suppose one distinguishes between metaphors which are based on known similarities and metaphors which require the discovery of new similarities. In the case of a metaphor based on known similarities no new knowledge will be acquired as a result of its comprehension. In such cases it may well be that comprehension is achieved not by attribute rejection but by attribute selection.

[3]Actually, this claim is rather oversimplified. There may be shared properties in similes, but where there are, these properties have subtle but important differences in the different domains of the two terms.

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